

Appl. No. 10/708,799
Amtd. dated May 16, 2006
Reply to Office action of March 08, 2006

Amendments to the Claims:

- Claim 1 (currently amended). A method ~~for of timing utilizing an dynamically compensating for the imprecision imprecise of a timer~~, the timer repeatedly triggering a reference event according to a predetermined time interval, the method comprising the steps of:
5 storing a threshold value;
storing a count value corresponding to a plurality of reference events generated from the timer;
10 tracking an actual time interval between each of the reference events, each actual time interval corresponding to an actual time between a first reference event and a second reference event occurring after the first reference event;
calculating a plurality of compensation value values, each compensation value corresponding to from the predetermined time interval and one of the actual time
15 interval intervals; and
utilizing each~~the~~ compensation value for reducing a difference between the count value and the threshold value; and
generating an acknowledgement event if the count value reaches the threshold value.
- 20 Claim 2(cancelled).

Claim 3 (currently amended). The method of claim 1 wherein the step of tracking the actual time interval between each of the reference events further comprises tracking ~~an~~the actual time interval between every two adjacent reference events.

- 25 Claim 4 (currently amended). The method of claim 3 wherein the step of tracking the actual time interval between each of the reference events further comprises utilizing a reference clock for computing a time value corresponding to the actual time interval

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between every two adjacent reference events, and resetting the time value before the reference clock starts tracking the actual time interval between the first reference event and the second reference event.

- 5 Claim 5 (currently amended). The method of claim 1 wherein the step of calculating the plurality of compensation values~~compensation-value~~ further comprises determining ~~the each~~ compensation value by calculating a ratio of one of the actual time interval intervals to the predetermined time interval.
- 10 Claim 6 (currently amended). The method of claim 5 wherein the step of calculating the plurality of compensation value values further comprises utilizing an integer closest to the ratio to be the compensation value for each of the compensation values.
- 15 Claim 7 (withdrawn). The method of claim 5 wherein the compensation value is a floating point value, and records the ratio of the actual time interval to the predetermined time interval.
- 20 Claim 8(withdrawn). The method of claim 1 wherein an initial value of the threshold value is greater than an initial value of the count value, and the step of utilizing the compensation value for reducing the difference further comprises increasing the count value and reducing the threshold value for reducing the difference by the compensation value.
- 25 Claim 9 (currently amended). The method of claim 1 wherein an initial value of the threshold value is greater than an initial value of the count value, and the step of utilizing ~~each~~the compensation value for reducing the difference further comprises adding ~~the~~each compensation value to the count value without adjusting the threshold value for reducing the difference by ~~the~~each compensation value.

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Claim 10 (withdrawn). The method of claim 1 wherein an initial value of the threshold value is less than an initial value of the count value, and the step of utilizing the compensation value for reducing the difference further comprises decreasing the count 5 value and increasing the threshold value for reducing the difference by the compensation value.

Claim 11 (currently amended). The method of claim 1 wherein an initial value of the threshold value is less than an initial value of the count value, and the step of utilizing 10 ~~the~~each compensation value for reducing the difference further comprises subtracting ~~the~~each compensation value from the count value without adjusting the threshold value for reducing the difference by ~~the~~each compensation value.

Claim 12 (original). The method of claim 1 wherein the reference events are system 15 interrupts.

Claim 13 (currently amended). A method of timing utilizing an imprecise or dynamically compensating for the imprecision of a timer, the timer repeatedly triggering a reference event, the method comprising the steps of:
20 storing a threshold value and a count value;
tracking an actual time interval between every two reference events, each actual time interval corresponding to an actual time between a first reference event and a second reference event occurring after the first reference event; and
updating the count value by according to a value being dynamically calculated through by
25 accumulating a plurality of actual time intervals corresponding to a plurality of reference events; and
generating an acknowledgement event if the count value reaches the threshold value.

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Claim 14 (cancelled).

Claim 15 (currently amended). The method of claim 13 wherein the step of tracking the actual time interval between every two reference events further comprises tracking the
5 actual time interval between every two adjacent reference events.

Claim 16 (currently amended). The method of claim 15 wherein the step of tracking the actual time interval between every two reference events further comprises utilizing a reference clock for computing a time value corresponding to the actual time interval
10 between every two adjacent reference events, and resetting the time value before the reference clock starts tracking the actual time interval between a first reference event and a second reference event.

Claim 17 (original). The method of claim 13 wherein the reference events are system
15 interrupts.

Claim 18 (currently amended). A timer system comprising:
a timer for repeatedly triggering a reference event according to a predetermined time
interval;
20 a first storage unit for storing a threshold value;
a second storage unit for storing a count value corresponding to a plurality of
reference events generated from the timer;
a tracking module electrically connected to the timer for tracking an actual time
interval between each of the reference events, each actual time interval
25 corresponding to an actual time between a first reference event and a second
reference event occurring after the first reference event;
a calculating module electrically connected to the tracking module for calculating a
plurality of compensation value values, each compensation value corresponding

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to from the predetermined time interval and one of the actual time interval intervals; and

a compensating module electrically connected to the calculating module and at least one of the first and second storage units for reducing a difference between the count value and the threshold value utilizing each compensation value.

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Claim 19 (original). The timer system of claim 18 further comprising a decision logic electrically connected to the first and second storage units for generating an acknowledgement event if the count value reaches the threshold value.

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Claim 20 (currently amended). The timer system of ~~claim 18~~ claim 19 wherein the first and second storage units, ~~the counting module~~, the calculating module, compensating module, and the decision logic are positioned within a microprocessor, and the timer is driven by the microprocessor.

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Claim 21 (original). The timer system of claim 18 wherein the tracking module comprises a clock generator for serving as a reference clock, and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events, and resets the time value before the reference clock starts tracking the actual time interval between the first reference event and the second reference event.

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25 Claim 22 (currently amended). The timer system of claim 18 wherein the compensating module determines the each compensation value by calculating a ratio of one of the actual time interval intervals to the predetermined time interval.

Claim 23 (currently amended). The timer system of claim 22 wherein the compensating module utilizes an integer closest to the ratio to be the each compensation value.

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Claim 24 (withdrawn). The timer system of claim 22 wherein the compensating module utilizes a floating point value to be the compensation value for recording the ratio of the actual time interval to the predetermined time interval.

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Claim 25 (withdrawn). The timer system of claim 18 wherein an initial value of the threshold value is greater than an initial value of the count value, and the compensating module increases the count value and reduces the threshold value for reducing the difference by the compensation value.

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Claim 26 (currently amended). The timer system of claim 18 wherein an initial value of the threshold value is greater than an initial value of the count value, and the compensating module adds the each compensation value to the count value without adjusting the threshold value for reducing the difference by the each compensation value.

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Claim 27 (withdrawn). The timer system of claim 18 wherein an initial value of the threshold value is less than an initial value of the count value, and the compensating module decreases the count value and increases the threshold value for reducing the difference by the compensation value.

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Claim 28 (currently amended). The timer system of claim 18 wherein an initial value of the threshold value is less than an initial value of the count value, and the compensating module subtracts the each compensation value from the count value without adjusting the threshold value for reducing the difference by the each compensation value.

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Claim 29 (original). The timer system of claim 18 wherein the reference events are system interrupts of the timer system.

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Claim 30 (currently amended). A timer system comprising:

- a timer for repeatedly triggering a reference event;
- a first storage unit for storing a threshold value;
- a second storage unit for storing a count value;
- 5 a tracking module electrically connected to the timer for tracking an actual time interval between every two reference events, each actual time interval corresponding to an actual time between a first reference event and a second reference event occurring after the first reference event; and
- 10 a calculating module electrically connected to the tracking module for updating the count value according to by a value being dynamically calculated through by accumulating a plurality of actual time intervals corresponding to a plurality of reference events.

15 Claim 31 (original). The timer system of claim 30 further comprising: a decision logic electrically connected to the first and second storage units for generating an acknowledgement event if the count value reaches the threshold value.

20 Claim 32 (currently amended). The timer system of ~~claim 30~~^{claim 31} wherein the first storage unit, the second storage unit, the calculating module, and the decision logic are positioned within a microprocessor, and the timer is driven by the microprocessor.

25 Claim 33 (currently amended). The timer system of claim 30 wherein the tracking module comprises a clock generator for generating a reference clock, and the tracking module utilizes the reference clock for computing a time value corresponding to the actual time interval between every two adjacent reference events, and resets the time value before the reference clock starts tracking an the actual time interval between a first reference event and a second reference event.

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Claim 34 (original). The timer system of claim 30 wherein the reference events are system interrupts of the timer system.